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ABSTRACT

The transfer of theory to practice in education is discussed, with attention to how new knowledge and innovative practices can be communicated to schools. Practices of Ramapo College of New Jersey are described as illustration. The importance of systematic relationships between colleges and schools is addressed. It is suggested that educational institutions be thought of as part of one system in terms of mission and articulation and interchanges among staff. This system should also include libraries, museums, industry associations, and corporate educators. Collaborative efforts between Ramapo College and secondary and higher education institutions are described that promote knowledge transfer. Joint activities that have taken place in support of cooperative programs include: joint discussions of subject matter by high school and college faculty; joint discussions on teaching strategies; joint high school and college activities such as theater productions; and school teachers serving as faculty fellows on campus. Key objectives of knowledge transfer and innovative practice are briefly considered for: the curriculum, learning and student achievement, assessment systems, teaching techniques, and the way that the school and external environment affect learning. (SW)

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Breaking the Knowledge Barrier: Improving the Transfer of New Knowledge and Innovative Practice to Schools

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"How can colleges and universities make their resources more readily accessible to schools?" "How can schools make their needs, interests, and concerns better known to colleges and universities?" By asking questions about how to improve the transfer of new knowledge—questions about subject matter, pedagogy, setting, student development, skill acquisition, and learning—we are really asking how to turn theory into practice. Furthermore, we are asking how new knowledge about these topics and innovative practices can be communicated to our schools.

These, of course, are neither new questions nor new issues. There have been other attempts at improving the methods of translating theory into practice, but for some reason they have not worked as well as they might. However, there are examples in other areas of endeavor where theory becomes part of practice more easily than in education. In those other settings, we find that the image of "all one system"—a concept developed by Harold Hodgkinson to discuss the effects

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of demographic changes on educational institutions--is more likely to be the case than in education.* Indeed, we find much more interest in these other settings in investing scarce resources in research and development for the betterment of basic missions than in education.

Previous attempts at knowledge transfer in education include laboratory schools, teacher centers, and of course the numerous individuals who have served as consultants to schools and teachers. It seems to me that one reason these methods have not worked as well as they might, is that laboratory schools have focused on individual teacher preparation with little systematic assessment and with limited attention to the dissemination of new practices. Teacher centers are usually alternatives to colleges and universities, not university-based sources of research and knowledge to be applied to the classroom. Consultants, authors, and knowledge brokers operate under individual initiative, not through any institutionally-based system or with an institutionally-based commitment.

It would seem that there have been few systematic relationships between colleges and schools, and this absence, together with the fact that neither schools nor teachers are especially "inquiry-prone", or oriented toward research to improve practice, has resulted in a lack of progress in the transfer of new knowledge and innovative practice to schools.

*Harold L. Hodgkinson, "All One System: Demographics of Education--Kindergarten through Graduate School" (The Institute for Educational Leadership, Inc., Washington, D.C., 1985).

However, new knowledge does find application in more systematic ways in other settings. Think of the pharmaceutical industry, agriculture, mental health, law enforcement, and medicine. In each case there are strong lines of communication from fundamental research to the development lab to the market. In these settings we can find many instructive examples of how new knowledge and innovative practice find application because of the self-interest of the participants.

Knowledge transfer, usually thought of as the transfer of theory to practice, is but one of several sources of new knowledge and innovation according to Peter Drucker.* The others, all applicable to education and each a potential topic for school-college collaboration, are listed below:

1. The Unexpected success, failure, or external event represents an opportunity for innovation.
2. The Incongruous gap between reality and what is assumed to be real provides another opportunity to innovate.
3. The Different--shifts in the structure of schools or the population.
4. Demographics--or population changes.
5. Changes in the perceptions of parents, students, and other citizens.

Each requires careful observation and analysis, and a penchant for turning occurrence into opportunity for improvement.

*Peter Drucker, Innovation and Entrepreneurship: Practice and Principles, New York: Harper and Row, 1985.

If we were to think of our educational institutions as part of one system, with one leading to another not only in terms of student demographics, but also in terms of mission and articulation, then frequent interchanges between and among faculty and administrators would be seen as natural. I suggest that we are now ready for an integration of schools—from nursery schools to day-care centers, to kindergartens, to elementary schools, to junior high schools, to senior high schools, to two-year colleges, to four-year undergraduate colleges to universities with graduate programs, and finally to post-graduate institutions—in ways we have never before contemplated.

This system should also include libraries, museums, industry associations, and corporate educators. All have strong vested interests in excellence in education and each can contribute to the improved functioning of the other.

The notion of one system does not mean that every element must be the same, or that each must give up its independence. As the example of the pharmaceutical industry illustrates, the elements do not even have to be governed by the same authority. However, each must see how it can become more successful by working with others than by operating alone. In fact, each must see that it can not do all that it must do, by itself.

Educational institutions can borrow lessons from industry. Consider colleges and universities. In almost every case imaginable, colleges and universities try to provide all of their services by themselves. Oh, they might sub-contract the snow plowing

and have a management contract for the cafeteria, but when it comes to essential activities in support of the mission, most colleges and universities try to provide every service on their own. We can't do that any more. At Ramapo, we use the metaphors of joint venture, licensing, and overseas development to illustrate several ways in which we can build on our strengths and offer more comprehensive services through partnerships than we can by ourselves.*

I suggest that we use these metaphors to develop the new kinds of relationships which can assist in the transfer of new knowledge and innovative practice to schools. Such linkages include those between a college and a high school and its feeder schools, such as Ramapo College has with West Side High School in Newark. (In this partnership, Ramapo faculty, staff, and students work with West Side High School faculty, staff, parents, and students throughout the year, with groups working together at each site, and a summer residential program which increases in length over the four years of a student's high school career. Each year a new group of two dozen ninth graders begins.) Another example consists of two colleges working with a school, such as the program we developed with Rutgers and NYU for Faculty Fellows who in turn can work with our high school partners. (Faculty Fellows are advanced graduate students who have already taken their course work and taught freshmen. At Ramapo, they work with a faculty mentor and teach an advanced class in their area of expertise. In this way we ensure a steady stream of high quality part-time faculty and introduce graduate students to college teaching.)

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*Robert A. Scott, "Corporate Metaphors for College Growth," The New York Times, December 15, 1985.

An idea which we have not yet instituted in New Jersey, but which I worked on with the Lawrence Metropolitan School District of Indianapolis, would attract and then provide training to mid-career scientists and engineers who could become high school teachers after a summer of university study and special seminars during the first year of teaching.

Another example is the college-corporation-school model which Ramapo College has undertaken with our campus-based joint medical pharmacology lab with Lederle Laboratories of American Cyanamid, and the way in which we plan to help our Newark high school students learn about science. (The lab is staffed by nine Ph.D. scientists from Lederle doing basic neuroscience investigation. Our faculty and students participate in various ways, from observer to bottle washer, to intern, to joint investigator.) Still another model is being developed now between Ramapo College and a community center in Newark, which is about to become our extension center for serving a largely Hispanic population of high school students and senior citizens in a highly urban area.

The key characteristic in each of these relationships designed to result in the transfer of new knowledge and innovative practice is institutional commitment and follow-through, which makes them unlike those we have seen in the past. These older relationships are principally supported by individual initiative without institutional commitment.

Some of the joint activities which can take place in support of these forms of

collaboration are these: (1) joint discussions of high school and college faculty on subject matter; (2) joint discussions on teaching strategies; (3) joint activities for students at the high school and the college, such as joint theater productions, science shows and demonstrations, etc.; (4) joint projects and contests, which can result in awards for achievement; (5) joint sessions with parents, teachers, and students on career preparation and opportunities, as well as on study skills; (6) joint review of programs, involving both high school and college faculty, and joint service on advisory committees; (7) school teachers to serve as faculty fellows on a campus, and (8) college faculty to serve as visiting scholars at a school. These are all ways in which students and faculty from schools and colleges can work together as part of one system for the advancement of knowledge and practice in support of student learning.

These collaborative efforts can take place at the school, the college, or another site. The setting can be a workshop, seminar, conference, a joint research project and publication, or simply working together.

The values and benefits of such collaboration have been expressed before:

> "Academic alliances result from a simple concept: adults who teach the same subject in the same geographic area share a collective responsibility for the quality of each other's teaching and learning."

> "Student teachers, graduate students, and undergraduate majors can make the transition from training to practice through communities of inquiry in their

discipline."

"These must be partnerships with teachers from all levels coming together, knowing that others can contribute to the conversation."*

These various forms of linkage, and others as well, are the structures which assist us in focusing on the following key objectives of knowledge transfer and innovative practice:

1. Curriculum. What is the curriculum to be, what is it to accomplish, how is it to be delivered, what conditions favor its success? These are key questions raised by Indiana Superintendent of Public Education Dean Evans; it is through linkages such as those described above that informed and sustained attention can be given to these key questions. Questions of time on task or length of the school year, the professional development of teachers, tracking, and new technologies for enhancing quality or improving pedagogy all can be addressed and enhanced through linkages which stress articulation as well as accountability, interdependence as well as independence.

2. Learning and student achievement. Recent national reports have ignored key questions which concern the ways of knowing and of problem-solving. These reports have not emphasized the several objectives for student achievement,

*Claire L. Gaudiani and David G. Burnett, "Academic Alliances: A New Approach to School/College Collaboration," AAHE, Current Issues in Higher Education, 1985/86 # 1, pages 6 and 10.

including academic, vocational, social, and personal skill development. However, through linkages such as those cited above, and others such as university learning laboratories connected to schools, or even through corporate education efforts, which in some cases are more far reaching, we can address such questions and disseminate the results. Perhaps a journal on learning and teaching whose editorial board would consist of school, college, and corporate educators, and whose widespread distribution was sponsored by corporate patrons, would enable us to report findings more adequately.

3. Assessment systems. Assessment is necessary at all levels of schooling, yet no level seems to contribute to the other in the improvement of assessment systems. In fact, at the college level, most faculty have never been taught how to develop an examination. This is an obvious area for knowledge transfer.

4. Techniques. One of the objectives of our Ramapo College work with the cluster schools feeding Newark's West Side High School is for faculty and teachers to learn from each other on how best to foster learning by students. Colleges, schools, and corporate education centers have much to contribute to the development of each other's teaching techniques.

5. The school and external environment. There are many questions about the degree to which student learning is affected by informal interaction among students, and about the effects of textbook publishers on the curriculum. If we were to consider the educational institutions in a particular geographic area as being all of one system, then they could learn from each other on how the school and external environmment affect learning.

Other topics which can benefit from the trtansfer of new knowledge and innovative practice are school management and leadership and parent and community involvement.

The objective is to assist each level of schooling in its primary mission of teaching for student achievement. By emphasizing this as the primary missiion, we can put the schools' other missions in proper priority order.

In all forms of partnership there can be a role for local corporations and other companies. Obviously, they can help sponsor prizes, events, and internships. Corporate educators have much to contribute to our knowledge about effective teaching and assessment, and to the uses of technology in conveying information.* One of our efforts at Ramapo College is to recruit local companies to donate shares of stock as prizes for students in the eighth and ninth grade, with additional stock accruing each year and resulting in a sizable scholarship fund by the time the student is a 12th grader. The company gains recognition from contributing to student opportunities and from teaching students about an important feature of the American economy. And for many companies this is an economical way of contributing to a good cause.

The state has a role in all of this as well. The state, through its Boards of Education and Higher Education, should sponsor research, development, evaluation, and dissemination of key teaching and learning strategies so that what is developed,

*Nell P. Eurich, Corporate Classrooms: The Learning Business, The Carnegie Foundation for the Advancement of Teaching, Princeton, 1985.

observed, and evaluated in one setting can be transmitted to others. This is necessary even when we think of institutions as part of one system, because there will be a tendency for colleges and universities to emphasize relationships with nearby schools, and this is appropriate. The state can also offer incentives for these consortia of schools, colleges and corporations to work together by funding experimental projects and additional forms of dissemination, such as telecommunication linkages between distant institutions.

In conclusion, let us think about schools, colleges, corporate education centers, lilbraries, and museums as part of a single system, similar in nature to the system which exists in the pharmaceutical and other industries. In these cases, there is a systemic relationship, guided by organizational commitment and leadership, between basic research, laboratory developments, and application. These three components do not just exist as separate enterprises; they interact with each other for their own advancement just the way schools, colleges and other educational institutions must if our goals of successful teaching and learning are to be attained.

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